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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,188	06/01/2001	David C. Mullen	7	2918

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EXAMINER

ALI, SYED J

ART UNIT PAPER NUMBER

2195

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/872,188

Applicant(s)

MULLEN, DAVID C.

Examiner

Syed J. Ali

Art Unit

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This office action is in response to the amendment filed March 18, 2005. Claims 1-22 are presented for examination.
2. The text of those sections of Title 35, U.S. code not included in this office action can be found in a prior office action.

### *Claim Rejections - 35 USC § 112*

3. **Claims 19-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

4. As per claims 19-20, the claims are phrased in such a way as to present what should be independent claims as dependent claims. Any claim which is in dependent form but which is so worded that it, in fact, is not a proper dependent claim, as for example it does not include every limitation of the claim on which it depends, will be required to be canceled as not being a proper dependent claim; and cancellation of any claim depending on such a dependent claim will be similarly required. The applicant may thereupon amend the claims to place them in proper dependent form, or may redraft them as independent claims, upon payment of any necessary additional fee. MPEP § 607.

Additionally, MPEP § 2173.05(p) states that a product-by-process claim is acceptable if the claim is phrased in such a way that "it is clear that the claim is directed to the product and not the

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process.” This is not the case for Applicant’s claims 19-20. Applicant has conceded that the claims are dependent claims on page 11 of the present response, where the independent claim is directed to a method. However, claims 19-20 are concerned with an apparatus and computer-readable medium. This leaves the claim uncertain as to whether the claims concern a method, apparatus, or computer-readable medium, which conflicts with the requirement of MPEP § 2173.05(p), requiring that it be clear they claim is directed to the product, i.e. the apparatus or computer-readable medium.

***Claim Rejections - 35 USC § 101***

**5. Claims 19 and 21-22 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.**

6. As per claims 19 and 21-22, the apparatus are software per se, as it is not tangibly embodied, failing to recite any hardware as part of the apparatus. Despite Applicant’s inclusion of “means for” language, the “means for” does not necessarily indicate statutory subject matter. The “means for” could simply be a software application, and there is no recitation of the structure of the apparatus in the specification that would require the “apparatus” or “means for” to be a piece of hardware. For example, on page 4 of Applicant’s specification, the apparatus is specified as including an “effector”, distinct from “means.” This effector could simply be a piece of software.

*Claim Rejections - 35 USC § 103*

7. Claims 1-13, 15-16, and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalavade et al. (USPN 6,393,433) (hereinafter Kalavade).

8. As per claims 1-10, 16, and 18-22, Kalavade teaches the invention as claimed, including a work-management method in a call center comprising determining a probability of availability at a future point in time of each of a plurality of resources (col. 2 lines 1-20; col. 8 line 57 - col. 9 line 11; col. 10 lines 53-62) by determining an amount of time  $t$  that the resource has been servicing a task by now (col. 6 lines 15-31; col. 7 lines 19-37), wherein the tasks comprise calls (col. 3 lines 32-62);

for each of the resources, determining a probability  $F(t + h)$  of the resource servicing its task to completion within a total amount of time  $t + h$ , where  $h$  is an amount of time (col. 9 lines 60-67);

for each of the resources, determining a probability  $F(t)$  of the resource completing servicing its task by now (col. 10 lines 1-20);

for each of the resources, determining a probability  $P$  that the resource will complete servicing its task at the future point in time the amount of time  $h$  from now as  $F(t + h) - F(t) / 1 - F(t)$  (col. 9 line 33 - col. 10 line 24);

combining the probabilities by summing the probabilities to obtain a number (col. 4 lines 40-47); and

using the number to schedule no more than the number of new tasks to become available for servicing by the plurality of the resources (col. 9 lines 5-11) for the resources for the future point in time (col. 4 lines 40-47; col. 4 line 65 - col. 5 line 1) by determining whether or not to initiate or cancel an outbound call in response to P (col. 3 lines 56-62; col. 10 line 53 - col. 11 line 12).

9. There are some noted differences between the precise claim language and the disclosure of Kalavade. Particularly, the claim recites computing a probability that a plurality of resources will be available in the future, while Kalavade discusses computing the probability of a task completing before its deadline expires. Essentially, the calculation of whether a task will complete before a particular deadline can be considered in similar terms as the task yielding the resource at particular point in time. The probability that the task will complete is the same as the probability of the resource being available, as the resource is only occupied as long as a task executes. Kalavade uses the statistical analysis as an admission control technique, only allowing tasks to be scheduled if the task's probable completion time satisfies the scheduling policy. By computing the probability of a task completing by its deadline, the scheduler knows with greater certainty whether another task with a hard deadline can reasonably be scheduled on that resource.

10. As per claims 11-13 and 15, Kalavade teaches the invention as claimed, including obtaining historical task-completion statistics comprising a mean and a variance of time historically spent by resources on servicing tasks to completion (col. 4 lines 20-31); and

from the obtained statistics determining the probability  $F(t + h)$  and  $F(t)$  (col. 7 lines 19-37; col. 9 line 33 - col. 10 line 24) by fitting the task-completion statistics into a lifetime closed-form cumulative-probability distribution to determine the parameters of the distribution (col. 5 lines 36-65), and

evaluating the distribution with the determined parameters and the total amount of time  $t + h$  to obtain  $F(t + h)$  and the amount of time  $t$  to obtain  $F(t)$  (col. 7 lines 19-53), wherein determining the amount of time  $t$  and the historical task-completion statistics is for one of a plurality of types of tasks (col. 4 lines 14-39).

**11. Claims 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalavade in view of Pena-Nieves et al. (USPN 6,816,798) (hereinafter Pena-Nieves).**

12. As per claims 14 and 17, Pena-Nieves teaches the invention as claimed, including representing the historical task-completion statistics as a Weibull distribution (col. 5 lines 24-26) using dispersion and central tendency parameters (col. 5 lines 27-43) in the form of a histogram (col. 4 lines 22-33).

13. It would have been obvious to one of ordinary skill in the art to combine Kalavade with Pena-Nieves since Weibull distributions have a great deal of flexibility for determining probabilities and can assume various distribution profiles (Pena-Nieves, col. 5 line 24-26). Many functions and applications are developed for mathematical analysis using Weibull distributions, making it a logical choice for statistical analysis and applications.

*Response to Arguments*

14. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new grounds of rejection.

*Conclusion*


15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed J Ali whose telephone number is (571) 272-3769. The examiner can normally be reached on Mon-Fri 8-5:30, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai T An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Syed Ali  
May 31, 2005



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